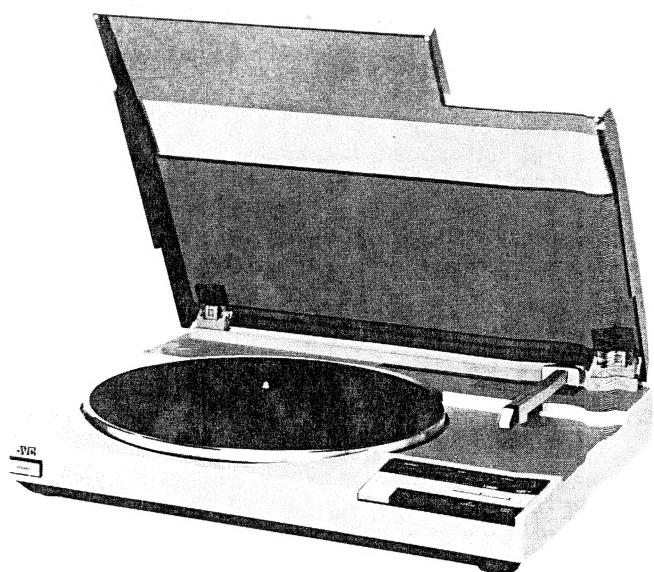


JVC

SERVICE MANUAL

MODEL
L-L1

LINEAR TRACKING
FULLY AUTOMATIC
TURNTABLE



Nb. 2658
M.R. 1983

Safety Precaution

1. The design of this product contains special hardware, many circuits and components specially for safety purposes.
For continued protection, no changes should be made to the original design unless authorized in writing by the manufacturer. Replacement parts must be identical to those used in the original circuits. Service should be performed by qualified personnel only.
2. Alterations of the design or circuitry of the product should not be made. Any design alterations or additions will void the manufacturer's warranty and will further relieve the manufacturer of responsibility for personal injury or property damage resulting therefrom.
3. Many electrical and mechanical parts in the product have special safety-related characteristics. These characteristics are often not evident from visual inspection nor can the protection afforded by them necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in the parts list of Service manual. Electrical components having such features are identified by shading on the schematics and by (Δ) on the parts list in Service manual. The use of a substitute replacement which does not have the same safety characteristics as the recommended replacement part shown in the parts list in Service manual may create shock, fire, or other hazards.
4. The leads in the products are routed and dressed with ties, clamps, tubings, barriers and/or the like to be separated from live parts, high temperature parts, moving parts and/or sharp edges for the prevention of electric shock and fire hazard.
When service is required, the original lead routing and dress should be observed, and they should be confirmed to be returned to normal, after re-assembling.

5. Leakage current check

(Safety for electrical shock hazard)

After re-assembling the product, always perform an isolation check on the exposed metal parts of the Products (antenna terminals, knobs, metal cabinet, screw heads, earphone jack, control shafts, etc.) to be sure the product is safe to operate without danger of electrical shock.

Do not use a line isolation transformer during this check.

- Plug the AC line cord directly into the AC outlet. Using a "Leakage Current Tester", measure the leakage current from each exposed metal part of the cabinet, particularly any exposed metal part having a return path to the chassis, to a known good earth ground (water pipe, etc.). Any leakage current must not exceed 0.5 mA AC (r.m.s.).

● Alternate check method

Plug the AC line cord directly into the AC outlet. Use an AC voltmeter having 1,000 ohms per volt or more sensitivity in the following manner. Connect a $1500\ \Omega$ 10 W resistor paralleled by a $0.15\ \mu F$ AC-type capacitor between an exposed metal part and a known good earth ground (water pipe, etc.). Measure the AC voltage across the resistor with the AC voltmeter.

Move the resistor connection to each exposed metal part, particularly any exposed metal part having a return path to the chassis, and measure the AC voltage across the resistor. Now, reverse the plug in the AC outlet and repeat each measurement. Any voltage measured must not exceed 0.75 V AC (r.m.s.). This corresponds to 0.5 mA AC (r.m.s.).

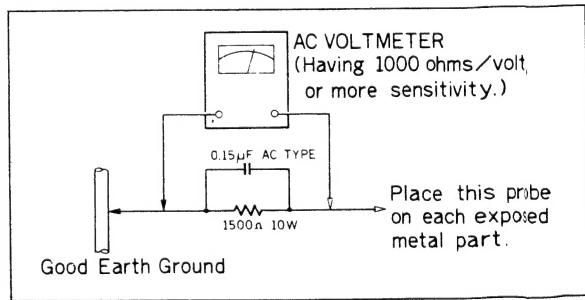
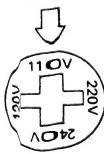


Fig. 1

CHECKING YOUR LINE VOLTAGE (For U.S. Military Market and Other Countries)

Before inserting the power plug, please check this setting to see that it corresponds with the line voltage in your area. If it doesn't, be sure to adjust the voltage selector switch to the proper setting before operating this equipment. The voltage selector switch is located underneath the platter on the cabinet.

CAUTION Before selecting the "Voltage selector switch" to proper voltage disconnect the power plug.



Features

- Linear tracking tonearm
- Fully automatic mechanism
- Plug-in MM cartridge
- Independent suspension system permits greater howling margin.

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1. Specifications

MOTOR SECTION

Motor	: DC servo-motor
Drive system	: Belt drive
Speeds	: 33-1/3, 45 rpm
Wow and flutter	: 0.045 % (WRMS)
Signal-to-noise ratio	: 70 dB (DIN-B)

TONEARM SECTION

Type	: Linear tracking statically balanced low-mass arm
Effective length	: 157 mm
Tracking error	: 25'
CARTRIDGE SECTION (Except for U.S.A.)	
Model	: MD-1045
Type	: Low mass type, moving magnet (MM)
Frequency response	: 10 Hz – 25,000 Hz
Output	: 2.5 mV (1 kHz, 50 mm/sec lateral)
Channel separation	: 25 dB (1 kHz) (Test record TRS-1)
Load resistance	: 47 kohms
Compliance	: 9×10^{-6} cm/dyne (Dynamic)
Stylus tip	: 0.6 mil diamond
Stylus	: DT-45
Optimum tracking force	: 1.25 g

GENERAL

Dimensions	: 97(H) x 435(W) x 360(D) mm
Net weight	: 4.5 kg (9.9 lbs)
Accessories	
EP adaptor	1
Cartridge fixing screw and screw- driver	1 each (only for U.S.A.)

POWER SPECIFICATIONS

Countries	Line Voltage & Frequency	Power Consumption
U.S.A. & CANADA	AC 120 V, 60 Hz	10 watts
EUROPE & W.GERMANY	AC 220 V~, 50 Hz	
U.K. & AUSTRALIA	AC 240 V~, 50 Hz	
U.S. MILITARY MARKET & OTHER AREAS	AC 110/120/220/240 V~ selectable, 50/60 Hz	

Design and specifications subject to change without notice.

2. Service Precautions

- (1) When replacing parts marked \triangle , be sure to use the specified parts to ensure safety.
- (2) When removing the tonearm, motor, mechanism, etc., be sure to check or adjust the lead-in position.
- (3) When servicing the motor for proper speed, be sure to install it level.
- (4) Since the rotor of the motor uses magnets, be careful to avoid iron powder, etc. when servicing.
- (5) The power cord is connected to the primary lead wires of the power transformer using a solderless connector. When this connector has to be replaced to replace the transformer, etc., be sure to check the new connector connection.
- (6) The lubricants listed below are employed in the L-L1; do not use other than those specified.

Name	Application place
Furoyl GP-501A Furoyl GB-TS-1	1:1 mix Engagement section between worm and worm gear Engagement section between both ends of worm ass'y and bearing stand Engagement section between pulley (M) and shaft
Anderole 732	Mechanism base: Engagement section between roller and shaft Thrust sliding section between roller and mechanism base
GP-608	Pipe

- (7) This unit has a construction in which the bottom board floats on springs away from the cabinet. With this construction, the playback system including the cartridge, etc. is isolated from the effects of sound pressure, etc. on the cabinet and dust cover. This leads to a greatly improved howling margin. After completion of repairs, be careful that the cabinet and the bottom board are not connected by shaping the wires correctly before joining them.

- (8) Handling the flat card (very thin parallel wire) For the above construction, this unit employs a flat card with low mechanical resistance to connect the board ass'ies on the cabinet and bottom board sides. When handling this, pay attention to the following points:

- 1) Do not bend the terminal section too much.

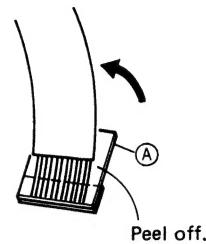


Fig. 2

- 2) When inserting into the socket.
 - a) Hold the wire section and section A together.
 - b) Paying attention to the direction, insert it into the socket fully until it stops.

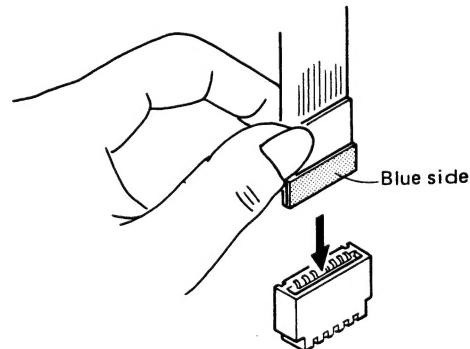


Fig. 3

- 3) When replacing the socket.
 - a) Do not apply a soldering iron for a long time.
 - b) Be careful the copper foil does not peel off the board.

3. Foot Ass'y and Installation Positions

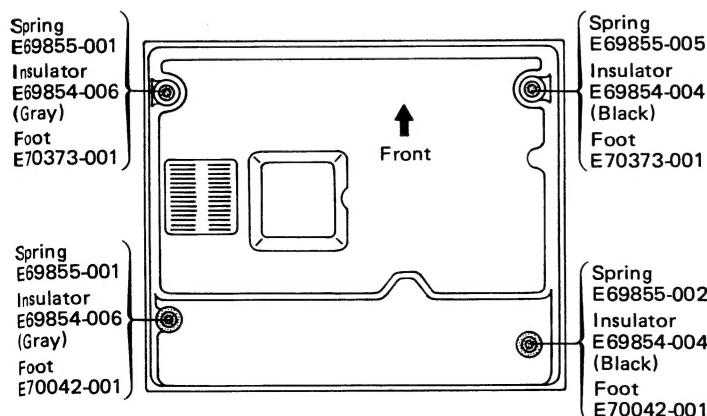


Fig. 4

Close coiled spring

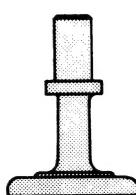


E69855-001
E69855-005 (Yellow)

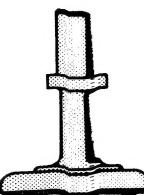
Spread coiled spring



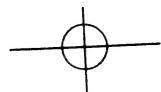
E69855-002



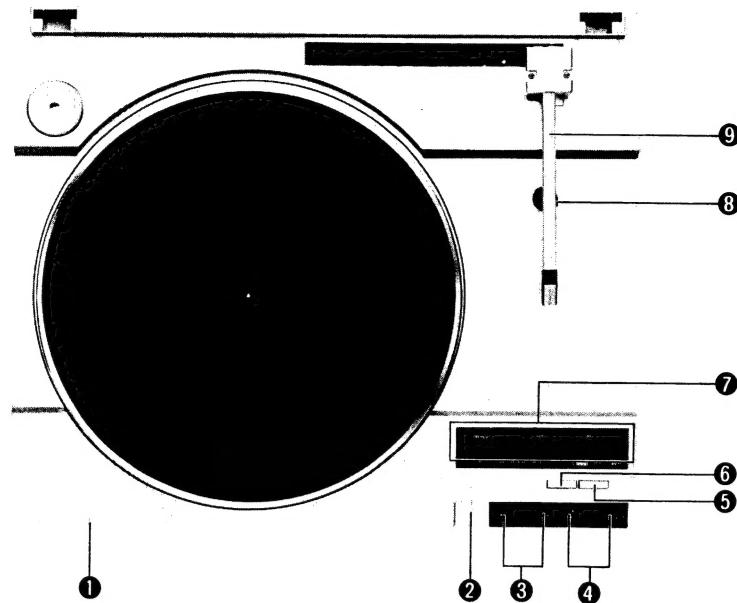
E70042-001



E70373-001



4. Names of Parts and Their Functions



① POWER switch

ON (—) : Press to set to this position to turn the power on; the indicators will light.

STAND BY : Press to set to this position to turn the power off.

Note:

Even when the POWER switch is off, this turntable consumes a small amount of electricity (2.5 watts). Disconnect the power cord to turn the electricity off completely.

② REPEAT button

Press this button to repeat a record. The REPEAT indicator will light. To release this function, press it again; the indicator will go out.

③ Tonearm movement control (<, >)

< : Press this side to move the tonearm to the left, the tonearm stops when the button is released.

> : Press this side to move the tonearm to the right, the tonearm stops when the button is released.

④ UP/DOWN & START/STOP button

UP/DOWN : Press this side to lift or lower the tonearm. Use this function for manual operation or when you want to stop playing temporarily in the middle of a record. When playing records manually, move the tonearm to the required position using the tonearm movement control, then press this button to lower the tonearm.

START/STOP: Press this side to play a record or to stop the playing of the record. When this is pressed to start playing a record, it acts as the start button and when this is pressed while a record is being played, it acts as the stop button.

Note:

When using the UP/DOWN & START/STOP button or the <, > button, be sure to press one end of the button.

⑤ SPEED button

Set this button according to the speed of the record. The corresponding speed indicator will light.

⑥ SIZE button

Set this button according to the size of the record. The corresponding size indicator will light.

⑦ Indicators

REPEAT indicator:

Lights red when the REPEAT button is set to on.

17 size indicator:

Lights red when 17-cm is selected with the SIZE button.

30 size indicator:

Lights red when 30-cm is selected with the SIZE button.

45 speed indicator:

Lights green when 45 rpm is selected with the SPEED button.

33 speed indicator:

Lights green when 33-1/3 rpm is selected with the SPEED button.

Note:

When the power is applied, the "30" and "33" indicators light.

⑧ Arm rest

⑨ Linear tracking tonearm

In record cutting, a linear tracking arm is used to cut a groove with very close correspondence to the original signal.

To enable the tonearm to follow the signal in exactly the same way as in record cutting, it is preferable to have a tonearm working on the same linear tracking principles. The main advantages of this tonearm are:

1. Because there is almost no tracking error, high frequency harmonic distortion is eliminated.
2. Because no inside force is generated, the pressure of the stylus on the left and right walls of the groove is equal so that channel separation is improved, tracking ability is better and intermodulation distortion is greatly reduced.
3. Because the tonearm is shorter, its weight is reduced; this improves tracking ability together with low frequency response.

5. Removal Procedures

5-(1) Replacement of stylus

How to remove the old stylus (Figs. 5 and 6)

Hold the cartridge and press the end of the stylus assembly in the direction of the arrow.

How to fit a new stylus (Figs. 5 and 6)

Being careful not to touch the stylus tip, fit the stylus assembly on the cartridge in the direction of the arrow.

Note:

The service life of the stylus depends on conditions of use; the standard is between 800 and 1600 hours.

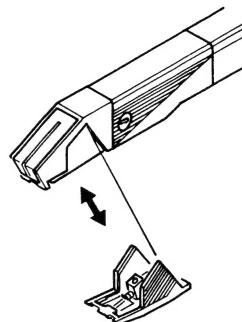


Fig. 5

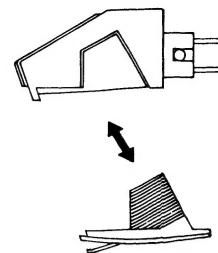


Fig. 6

5-(2) Replacement of cartridge

1. Remove the cartridge fixing screw (Fig. 7).
2. Pull the cartridge forward as shown in Fig. 8.

Note:

A plug-in cartridge is used for the L-L1. Therefore, specify a **T4P** type cartridge when purchasing a new cartridge.

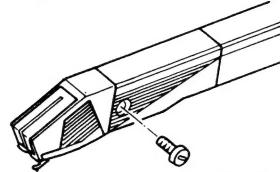


Fig. 7

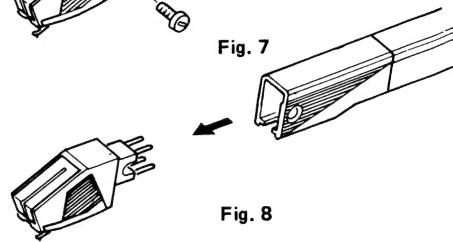


Fig. 8

5-(3) Removal of cabinet

- (1) Remove the four foot mounting screws from the bottom board.
- (2) Remove the cord stopper of the signal cord.
- (3) Remove the tonearm cover and the two pan head screws in the base of the arm as shown in Fig. 9. In addition, be sure to cover the stylus with the stylus cover to protect it.
- (4) While holding the pipe joint by hand, pull the arm pipe slightly towards you (Step 1) and lift the arm pipe until it stops. (Step 2)
- (5) Remove the cabinet cover at the base of the arm. (Step 3) (Move out the cabinet cover to the rear while pressing down the area marked by an arrow as shown in Fig. 11.)
- (6) Set up the cabinet paying attention to the arm and rest sections.
At this time, note that the cabinet and the bottom cover are joined using wires, etc.

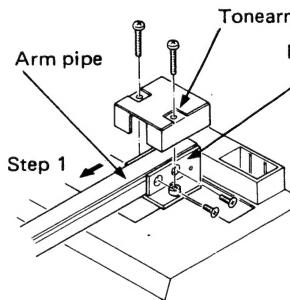


Fig. 9

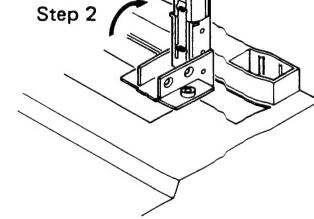


Fig. 10

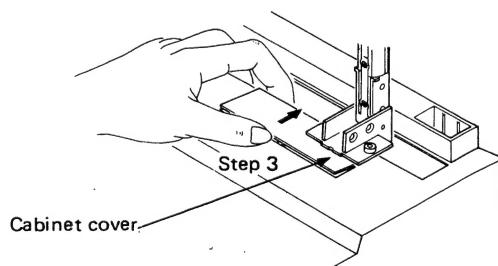


Fig. 11

5-(4) Removal of arm angle photocoupler P.C. board

1. Remove the stopper screw. (Fig. 13)
2. Turn the screw counterclockwise as shown in Fig. 12. Then, in the state in Fig. 12, pull out the board.

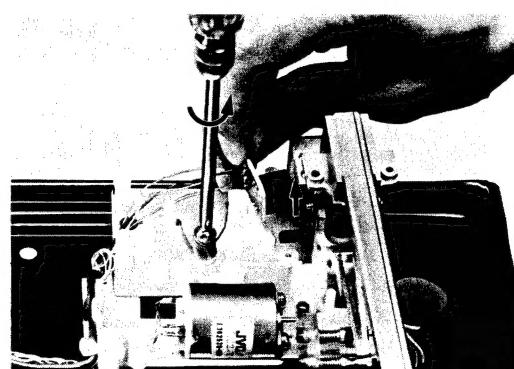


Fig. 12

5-(5) Replacement of cueing motor and installation of elevator

- To remove the motor, remove screws ① and ② as shown in Fig. 13.
 - After replacing the motor, install the elevator in the following procedure.
 - Set the arm height adjustment cam "A" as shown in Fig. 14 in reference to the elevator lever.
 - While pushing the elevator lever against cam "A" with a finger, turn the lead terminal section of the motor rotor fully clockwise, then return it about 8° and tighten the setscrew.
 - (In the state that the lead terminal section is returned about 8°, its clearance from the resin part is about 2 mm as shown in Fig. 15.)
- Notes:**
- After setting the elevator lever, lock the setscrew with adhesive.
 - After replacing the cueing motor, be sure to perform all adjustments again.

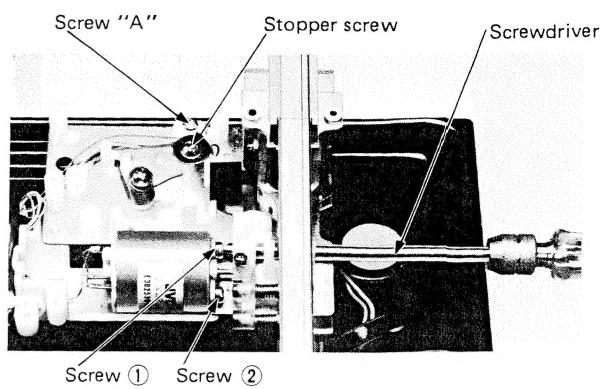


Fig. 13

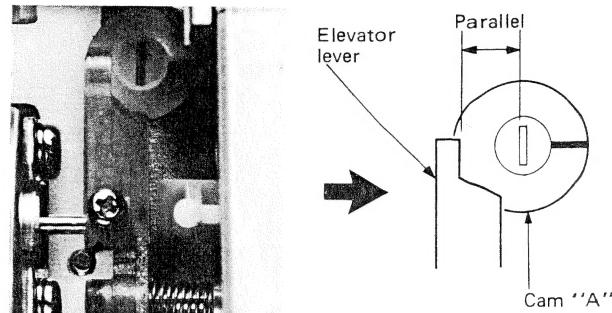


Fig. 14

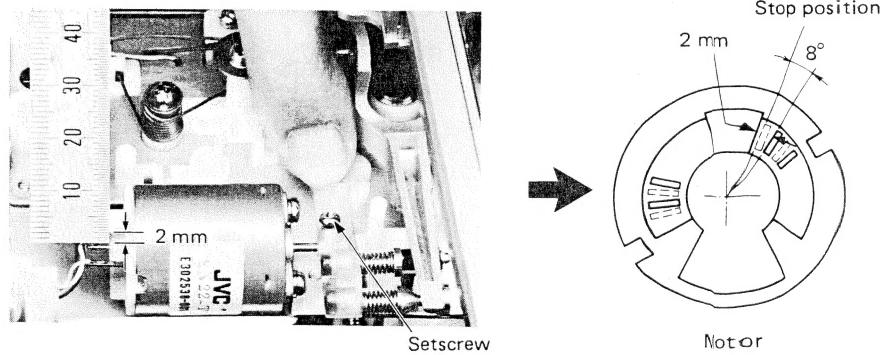


Fig. 15

5-(6) Removal of arm ass'y

- Remove screw "A" (in Fig. 13), then remove the mechanism base ass'y from the bottom board.
- Unsolder the lead wires of the tonearm.
- Untighten the screw shown in Fig. 16, then pull out the stopper.
- Pull out the arm ass'y upwards.

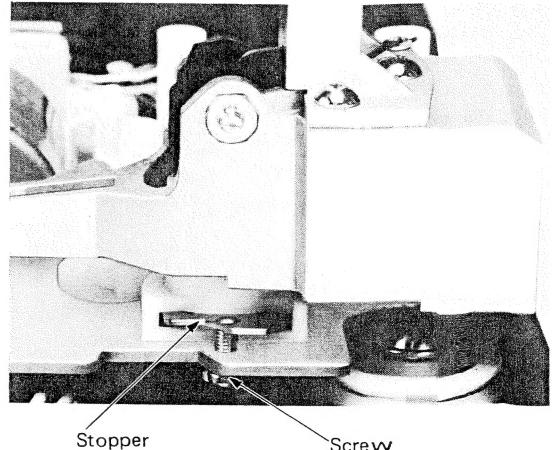


Fig. 16

6. Rope Stringing

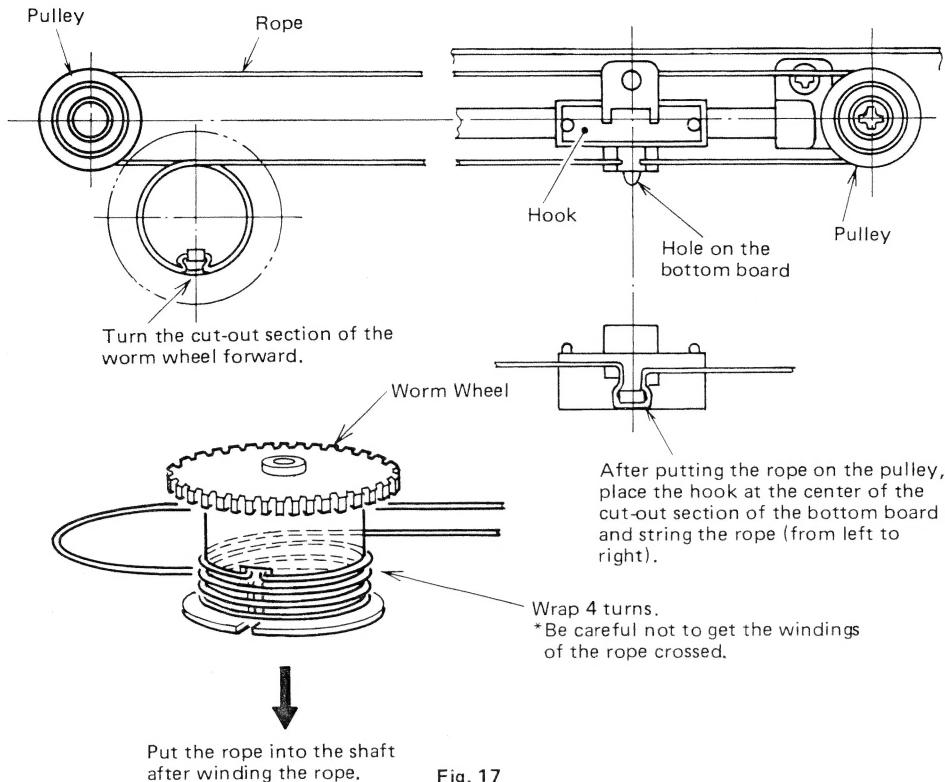


Fig. 17

7. Adjustment Procedures

7-(1) Arm parallel adjustment

With the elevator lever lifted up, adjust so that the center line of the pipe arm and the longitudinal outline of the bottom board are parallel using pin "b". (Fig. 18)

7-(2) Stylus height adjustment

(1) With the elevator lever lifted up, adjust the height from the record surface to the cartridge body using cam "A". (Fig. 19)

Note: Cam "A" has no directionality.

(2) After adjusting the stylus height, adjust the clearance between pin "a" and the under side of the lever of the tonearm to about 0.1 mm by turning pin "a". (Fig. 20) (The clearance should be as small as possible.)

Note: Pin "a" turns 360° , but adjust in the right angular range of 180° . (Adjust with pin "a" set toward the pivot center.)

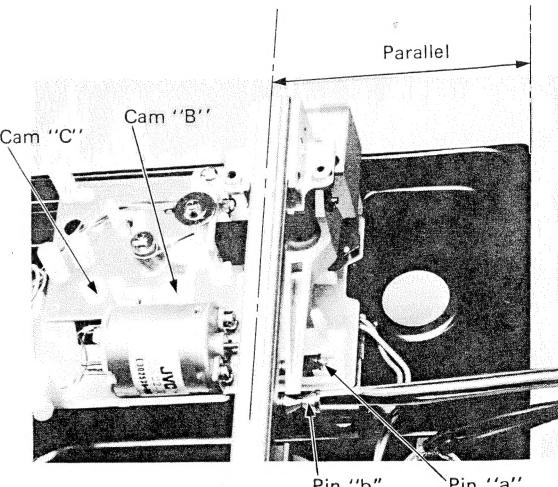


Fig. 18

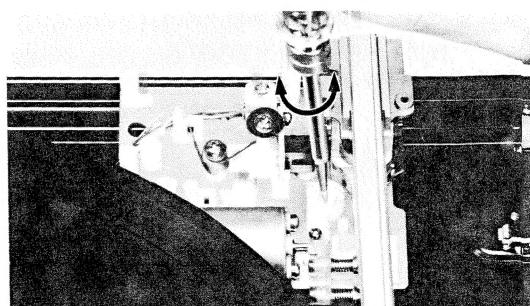


Fig. 19

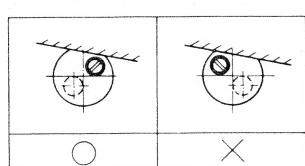
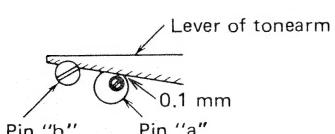


Fig. 20

7-(3) Offset adjustment

- (1) Move the arm to the left to release it from the rest.
- (2) Lift the elevator.
- (3) Adjust the output voltage of the arm offset angle detecting photointerrupter to 25 mV – 35 mV by turning cam "B". This output voltage is measured between test points TP-1 and TP-2 with a short between TP-3 and TP-4.

7-(4) Lead-in adjustment

Adjust the 30-cm lead-in count to 23 ± 2 by turning cam "C". In addition, check the 17-cm lead-in and lead-out.

	Test record	Count	—
30 cm lead-in	SS-4343	23 ± 2	Adjustment
17 cm lead-in	SS-4445	23 ± 5	Check
17 cm lead-out	SS-4445	26 ± 2	Check

7-(5) Motor speed adjustment

(1) Speed check

Play back a frequency test record (SS-4141) to measure the frequency deviation.

(2) 33-1/3 RPM measurement

Play back any one of bands 1, 3 and 5 of the frequency test record (SS-4141), then read the frequency on a counter. This reading should be $3150 \text{ Hz} \pm 0.2\%$ (3144 to 3156 Hz).

(3) 45 RPM measurement

Set the speed select switch to 45 RPM, play back any one of bands, 2, 4 and 6 of the frequency test record (SS-4141) and read the frequency on a counter. This reading should be $3150 \text{ Hz} \pm 0.2\%$ (3144 to 3156 Hz).

(4) When the measurement value is out of the specified frequency range, adjust the adjustment holes (A and B) on the bottom board in the following procedure. (Fig. 21)

1. Set the speed select switch to "33-1/3", adjust adjustment hole "A" (VR802) to obtain the frequency value in item (2).
2. Switch the speed select switch over to "45", adjust adjustment hole "B" (VR801) to obtain the frequency value in item (3).

Notes: 1. Be sure to perform the 33-1/3 RPM adjustment first.

When the 33-1/3 RPM adjustment has been performed again after the 45 RPM adjustment, it is needed to carry out the 45 RPM adjustment again.

2. Cover the shank of the screwdriver with PVC tape to protect the bottom case from accidental shorting.

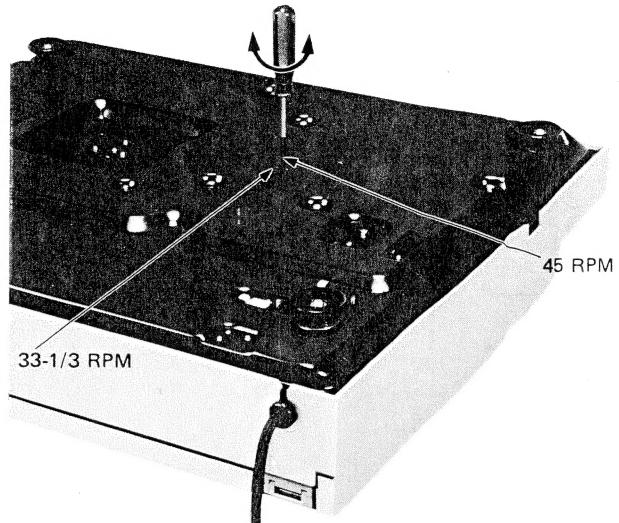


Fig. 21

8. Block Diagram

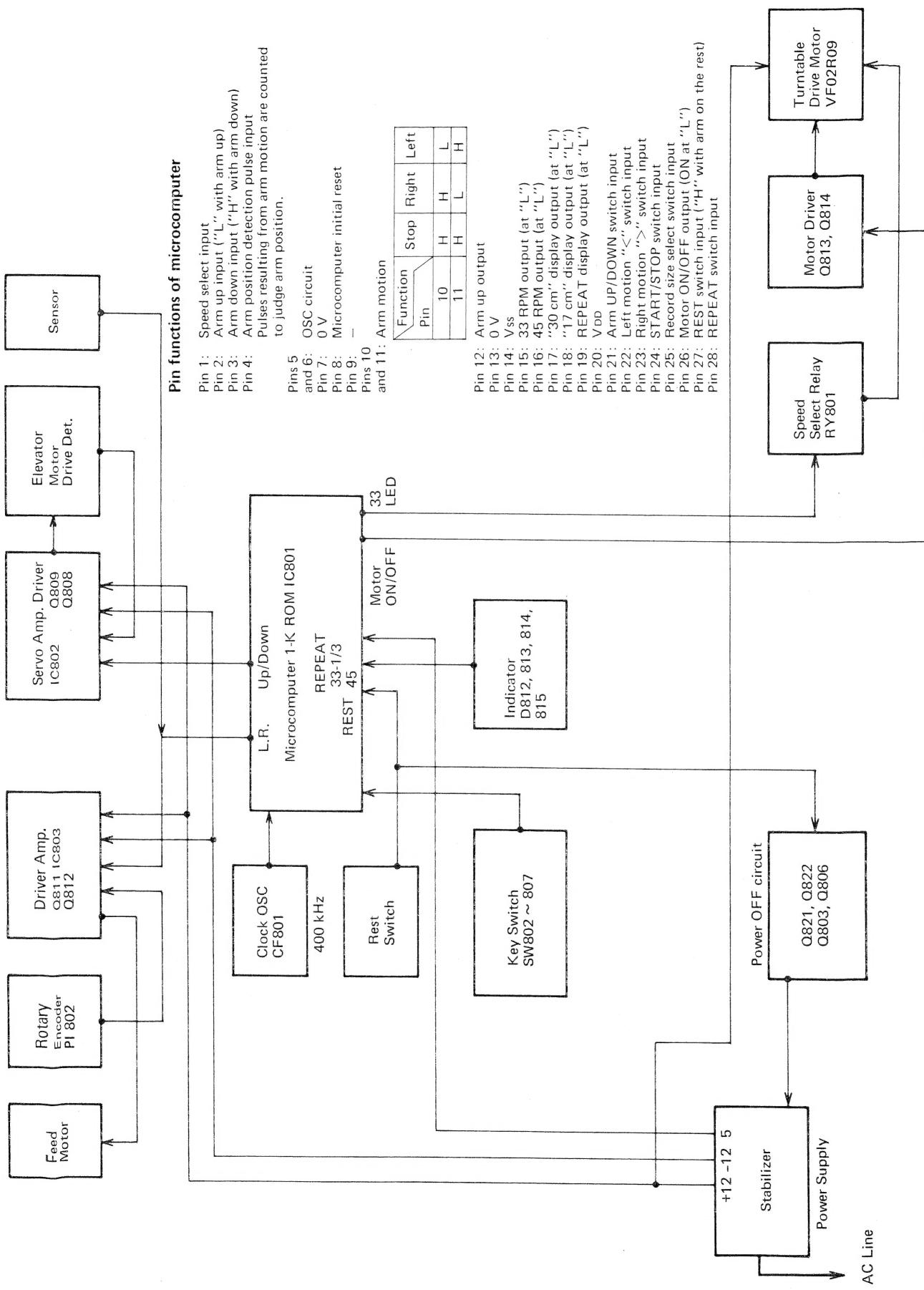


Fig. 22

9. Connection Diagram

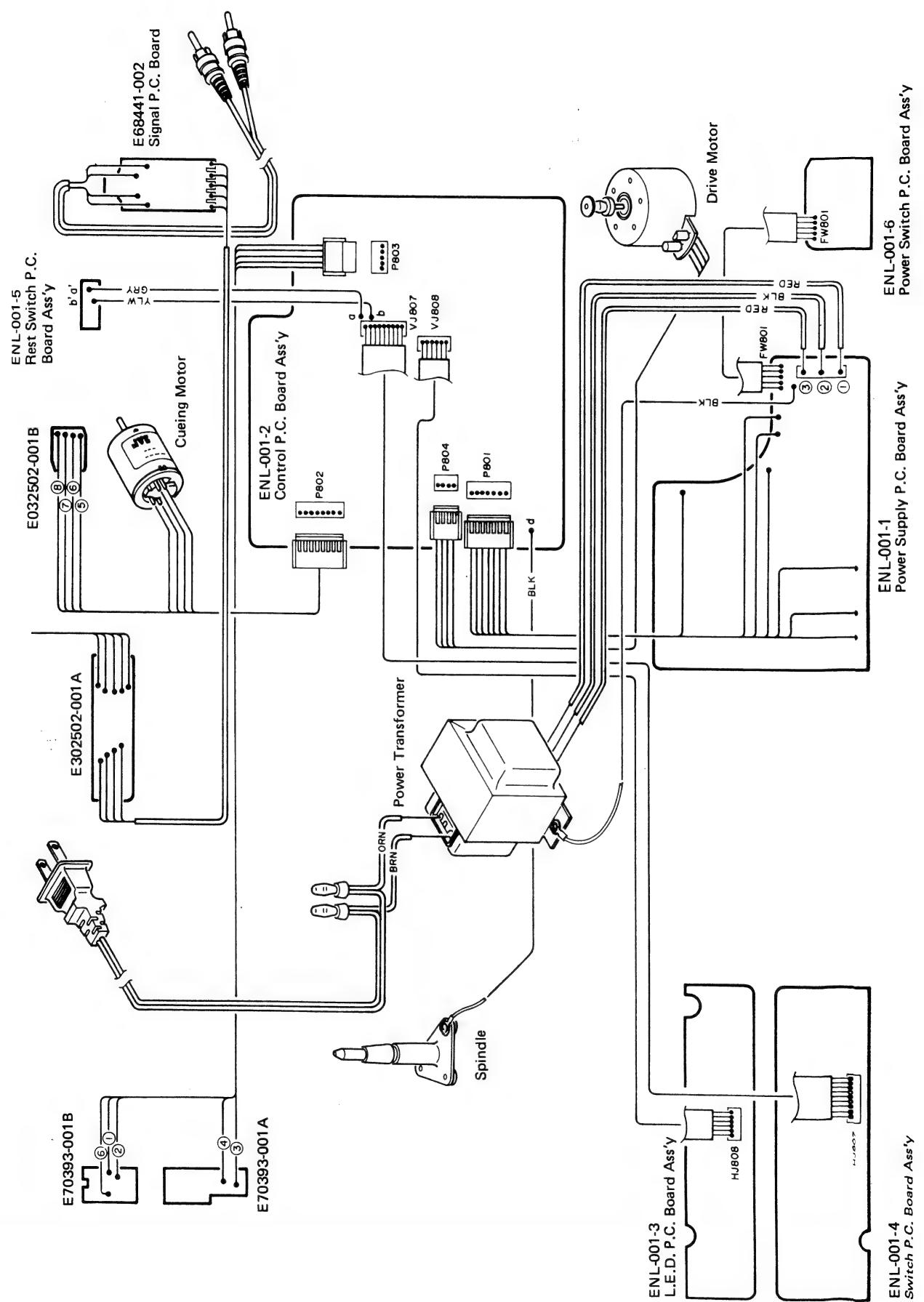


Fig. 23

10. Exploded Views and Part Numbers

10-(1) Platter and cabinet

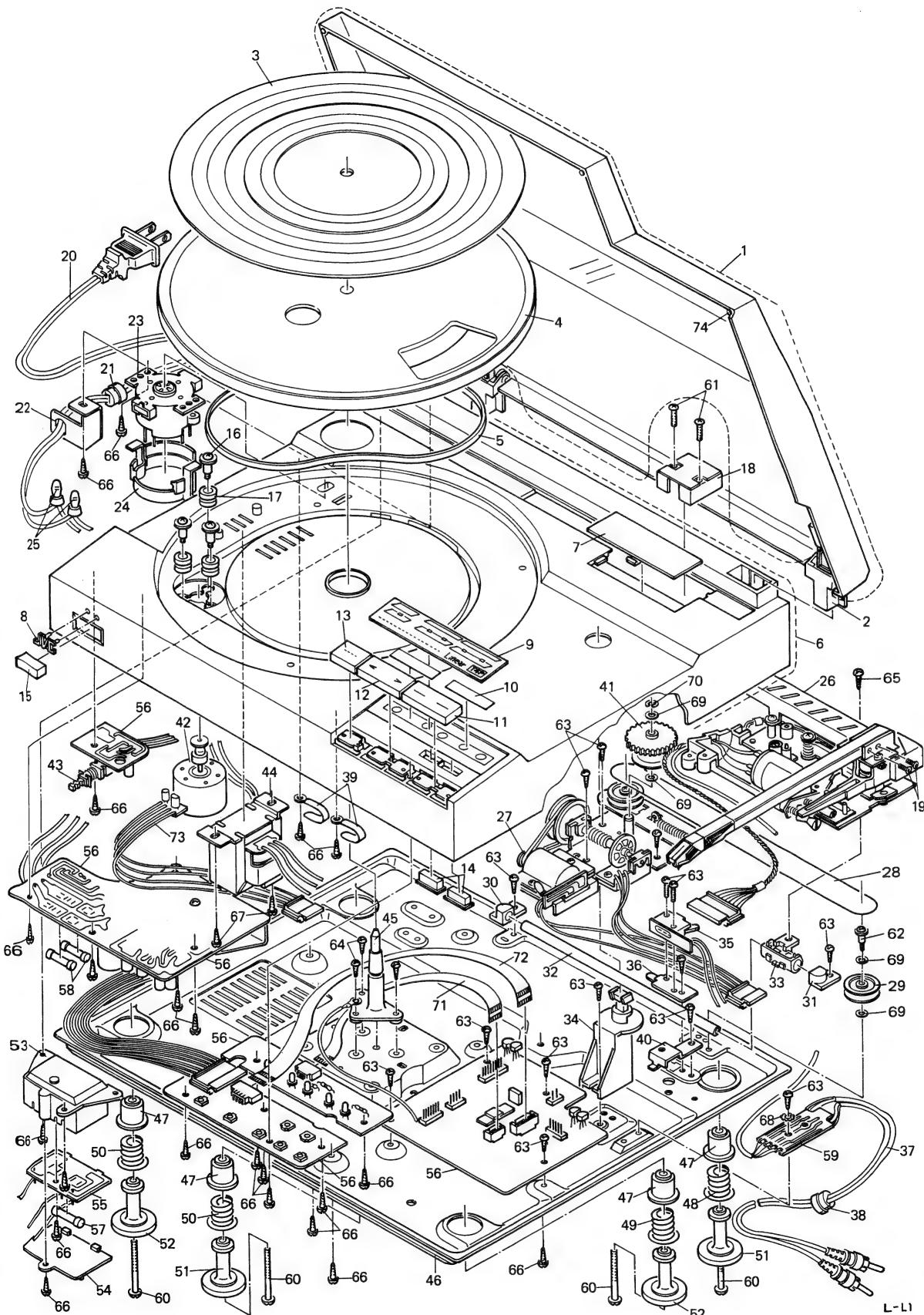


Fig. 24

Item No.	Part Number	Description	Q'ty
1	E24402-003	Dust Cover Ass'y	1
2	E70081-001	Hinge Ass'y	2
3	E24351-001	Platter mat	1
4	E24396-001	Platter	1
5	E301164-001	Belt	1
6	E302683-001	Cabinet Ass'y	1
7	E302676-001	Cover	1
8	E69212-001	Mark	1
9	E302685-001	Ornament	1
10	E70251-001	Sheet	2
11	E302671-004	Button (START/STOP)	1
12	E301671-003	Button ("<", ">")	1
13	E302672-002	Button (REPEAT)	1
14	E70250-001	Button (SPEED, SIZE)	2
15	E302670-001	Button (POWER)	1
16	E66042-004	Special Screw	3
17	E66509-001	Rubber Bushing	3
18	E24399-001	Arm Cover	1
19	SSSP2606N	Screw	2
20	See page 21	Power Cord △	1
21	See page 21	Cord Stopper △	1
22	E0291-001	Bracket	1
23	See page 21	Voltage Selector △	1
24	See page 21	V. Selector Cover△	1
25	See page 21	Connector △	2
26	See page 13	Mechanism Base Ass'y	1
27	See page 13	Motor gear Ass'y	1
28	E70476-002	Rope Ass'y	1
29	E69850-002	Pulley (M)	1
30	E302498-001	Pipe Holder (L)	1
31	E302498-002	Pipe Holder (R)	1
32	E69849-002	Pipe	1
33	E70145-002	Hook Ass'y	1
34	E302673-001	Arm Rest	1
35	QSS1201-034	Slide Switch	1
36	E68712-001	Bracket	1
37	EWP301-002	Signal Cord	1
38	QHS3876-252	Cord Stopper	1
39	E50670-005	Wire Clamp	2
40	E69852-001	Bracket	1
41	E302507-001	Gear	1
42	VFO2R09	Motor Ass'y	1
43	QST4101-E09	Push Switch	1
44	See page 21	Power Transformer △	1
45	E70247-001	Spindle Ass'y	1
46	E10838-001	Bottom Board	1
47	E69854-004	Insulator (Front/Rear, R)	2
	E69854-006	Insulator (Front/Rear, L)	2
48	E69855-002	Spring (Rear R)	1
49	E69855-005	Spring (Front R)	1
50	E69855-001	Spring (Front/Rear L)	2
51	E70042-001	Foot (Rear L, R)	2
52	E70373-001	Foot Ass'y (Front L, R)	2
53	See page 21	P.C. Board Case	1
54	See page 21	P.C. Board Cover	1
55	See page 21	P.C. Board Ass'y (TPS-332)	1
56	See page 21	P.C. Board Ass'y (ENL-001)	1
57	See page 21	Fuse (Primary) △	1
58	See page 21	Fuse (Secondary) △	2
59	E68441-002	Signal P.C. Board	1
60	GBSF3045Z	Screw	4

△ : Safety parts

Item No.	Part Number	Description	Q'ty
61	SDSP2612N	Screw	2
62	E69851-002	Screw	1
63	SBST3006Z	Screw	16
64	SBST3008Z	Screw	3
65	DPSP3008Z	Screw	1
66	SBSF3008Z	Screw	20
67	SBSF3010Z	Screw	2
68	WBS3000N	Washer	1
69	Q03093-817	Washer	2
70	REE3000X	E, Ring	1
71	EWR16E-029SS	Flat Wire	1
72	EWR19E-25SS	Flat Wire	1
73	EWS014-087	Socket Wire Ass'y	1
74	E69897-001	Cushion	3

10-(2) Motor gear ass'y

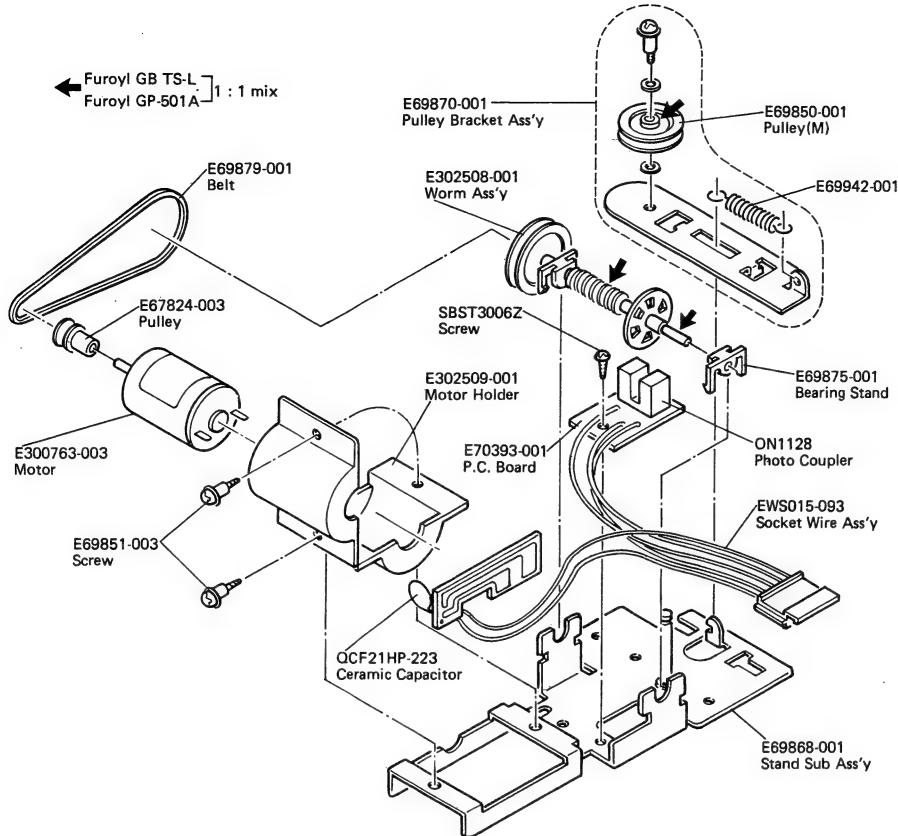


Fig. 25

10-(3) Mechanism base ass'y

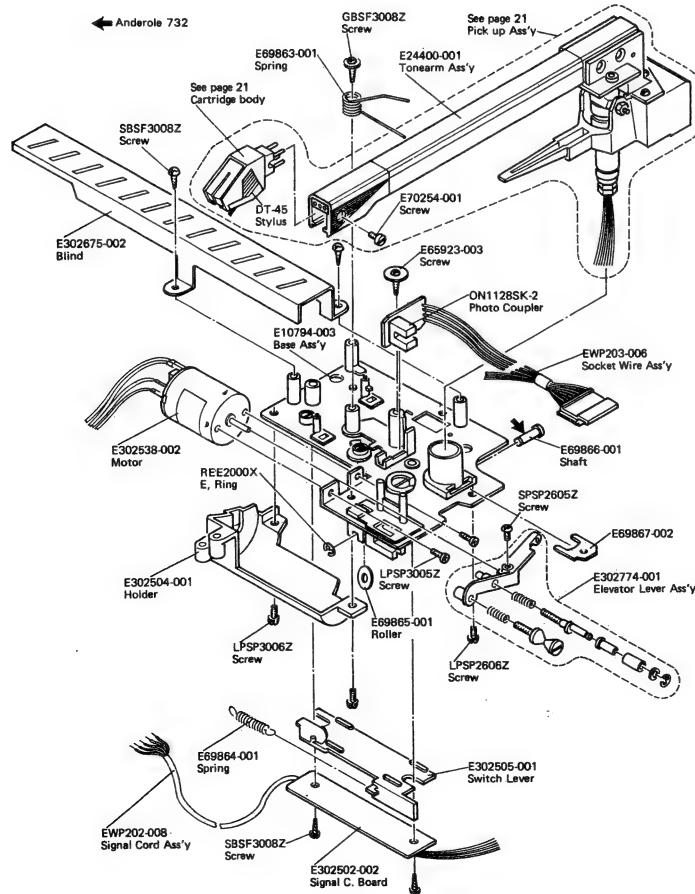


Fig. 26

11. Printed Circuit Board Ass'y and Parts List

11-(1) ENL-001□ main amp., power supply & control P.C. board ass'y

Note (1): The number of ENL-001□ varies according to the area employed. See table below.

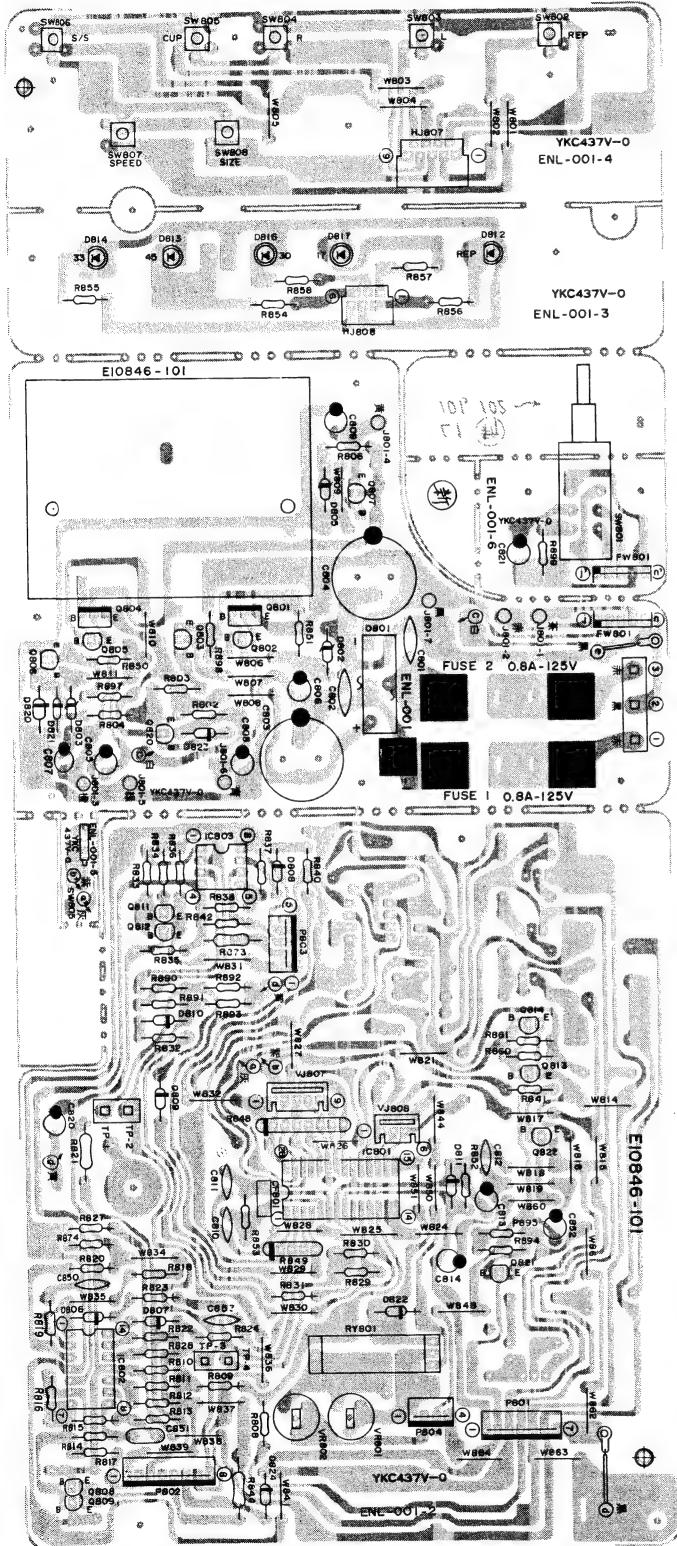


Fig. 27

Each Individual P.C. Board Location

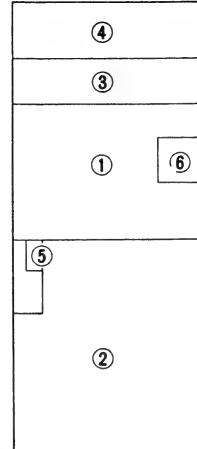


Fig. 28

Note (1)

Designated Areas	P.C. Board Ass'y
U.S.A. & Canada	ENL-001A
All Other Areas	ENL-001B

Note (2)

The symbols (赤, 黒, 白 ... etc.) on P.C. Board surface are factory process only.

Transistors

Item No.	Part Number	Rating	Description	Maker
Q801	2SD1265A(Q,P)		Silicon	Matsushita
Q802	2SA733A(P,Q)		"	NEC
Q803	2SC945A(P,Q)		"	"
Q804	2SB941A(P,Q)		"	Matsushita
Q805	2SC945A(P,Q)		"	NEC
Q806	2SC945A(P,Q)		"	"
Q807	2SD571(L,K)		"	"
Q808	2SA1015(Y,GR)		"	Toshiba
Q809	2SC1815(Y,GR)		"	"
Q811	2SC2120(O,Y)		"	"
Q812	2SA950(O,Y)		"	"
Q813	2SD438(D,E)		"	Sanyo
Q814	2SC945A(P,Q)		"	NEC
Q820	2SA733A(P,Q)		"	"
Q821	2SC945A(P,Q)		"	"

ICs

Item No.	Part Number	Rating	Description	Maker
IC801	LM6416E-184		Sanyo	
IC802	NJM2058DA		Dainichi	
IC803	NJM4558D		"	

Diodes

Item No.	Part Number	Rating	Description	Maker
D801	S1RBA20F1		Silicon	Shindengen
D802	HZ12A2-L		"	Hitachi
D803	HZ12A2-L		"	"
D805	HZ6B2-L		"	"
D806	1S2076-31		"	"

Diodes

Item No.	Part Number	Rating	Description	
			Maker	
D807	1S2076-31		Silicon	Hitachi
D808	1S2076-31		"	"
D809	1S2076-31		"	"
D810	1S2076-31		"	"
D811	1S2076-31		"	"
D812	SR603C		L.E.D.	NEC
D813	SR603C		"	"
D814	SR603C		"	"
D816	SLR-54GC4		"	Rohm
D817	SLR-54GC4		"	"
D820	1S2076-31		Silicon	Hitachi
D821	1S2076-31		"	"
D822	1S2076-31		"	"

Capacitors

Item No.	Part Number	Rating		Description
C801	QCE22HP-103	0.01 μ F	500 V	Ceramic \triangle
C802	QCE22HP-103	"	"	" \triangle
C803	QEU51EM-228M	2200 μ F	25 V	Electrolytic
C804	QEU51EM-228M	"	"	"
C805	QET51EM-476	47 μ F	"	"
C806	QET51EM-476	"	"	"
C807	QET51EM-476	"	"	"
C808	QET51EM-476	"	"	"
C809	QET51CM-476	"	16 V	"
C810	QCS21HJ-221	220 pF	50 V	Ceramic
C811	QCS21HJ-221	"	"	"
C812	QCF21HP-223	0.022 μ F	"	"
C813	QET51EM-106	10 μ F	25 V	Electrolytic
C814	QET51EM-106	"	"	"
C820	QET51EM-106	"	"	"
C821	QET51CM-476	47 μ F	16 V	"
C850	QCF21HP-223	0.022 μ F	50 V	Ceramic
C851	QFN81HJ-473	0.047 μ F	"	Mylar
C852	QET51CM-106	10 μ F	16 V	Electrolytic

Resistors

Item No.	Part Number	Rating		Description
R801	QRD141J-103S	10 k	1/4 W	Carbon
R802	QRD141J-103S	"	"	"
R803	QRD141J-473S	47 k	"	"
R804	QRD141J-472S	4.7 k	"	"
R806	QRD141J-471S	470	"	"
R808	QRD141J-182S	1.8 k	"	"
R809	QRD141J-122S	1.2 k	"	"
R810	QRD141J-103S	10 k	"	"
R811	QRD141J-104S	100 k	"	"
R812	QRD141J-103S	10 k	"	"
R813	QRD141J-273S	27 k	"	"
R814	QRD141J-271S	270	"	"
R815	QRD141J-102S	1 k	"	"
R816	QRD141J-223S	22 k	"	"
R817	QRD141J-102S	1 k	"	"
R818	QRD141J-103S	10 k	"	"
R819	QRD141J-124S	120 k	"	"
R820	QRD141J-561S	560	"	"
R821	QRD125J-4R7	4.7	1/2 W	UNF. carbon \triangle
R822	QRD141J-103S	10 k	1/4 W	Carbon
R823	QRD141J-123S	12 k	"	"
R824	QRD141J-123S	"	"	"
R827	QRD141J-124S	120 k	"	"
R828	QRD141J-432S	4.3 k	"	"
R829	QRD141J-102S	1 k	"	"
R830	QRD141J-102S	"	"	"
R831	QRD141J-333S	33 k	"	"
R832	QRD141J-333S	"	"	"
R833	QRD141J-271S	270	"	"
R834	QRZ0062-100	10		Fusible \triangle
R835	QRZ0062-100	"		" \triangle
R836	QRD141J-824S	820 k	1/4 W	Carbon
R837	QRD141J-103S	10 k	"	"
R838	QRD141J-103S	"	"	"
R840	QRD141J-123S	12 k	"	"

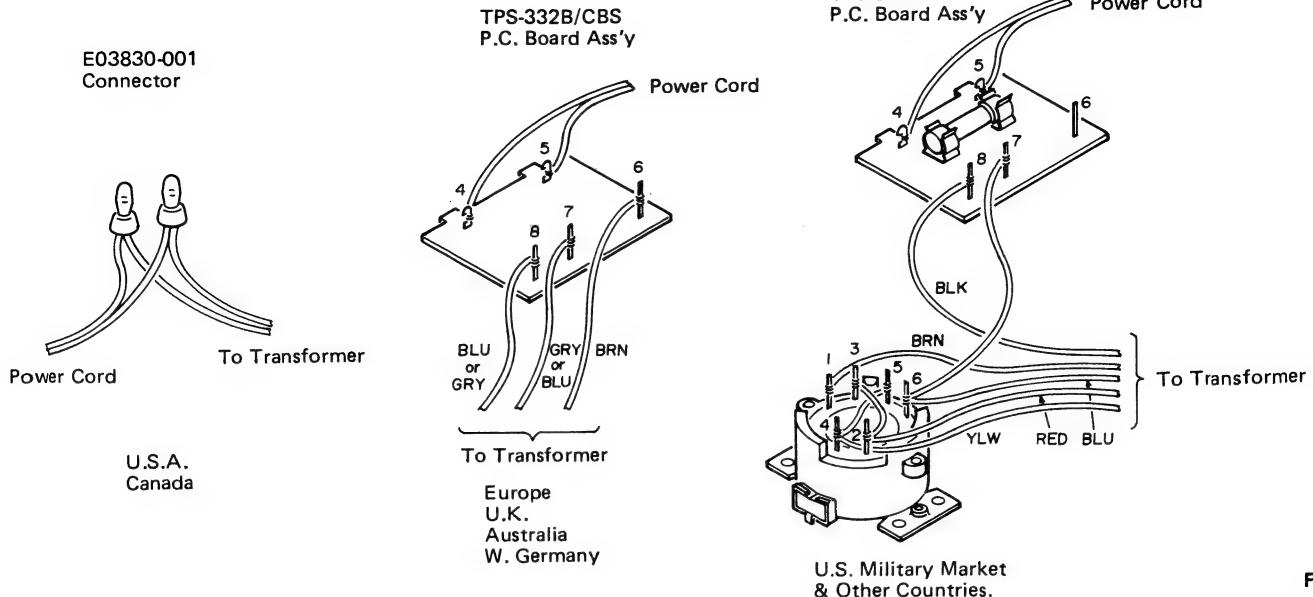
Resistors

Item No.	Part Number	Rating		Description
R842	QRD141J-183S	18 k	1/4 W	Carbon
R844	QRD125J-681	680	1/2 W	UNF carbon \triangle
R848	ERGS7XK-103			Resistor array
R849	ERGS4XK-103			"
R852	QRD141J-103S	10 k	1/4 W	Carbon
R853	QRD141J-105S	1 M	"	"
R854	QRD141J-102S	1 k	"	"
R855	QRD141J-471S	470	"	"
R856	QRD141J-102S	1 k	"	"
R857	QRD141J-102S	"	"	"
R858	QRD141J-102S	"	"	"
R860	QRD141J-222S	2.2 k	"	"
R861	QRD141J-562S	5.6 k	"	"
R873	QRD125J-182	1.8 k	1/2 W	UNF. carbon \triangle
R874	QRD141J-103S	10 k	1/4 W	Carbon
R875	QRZ0062-100	10		Fusible \triangle
R876	QRZ0062-100	"		" \triangle
R890	QRD141J-333S	33 k	1/4 W	Carbon
R891	QRD141J-333S	"	"	"
R892	QRD141J-392S	3.9 k	"	"
R893	QRD141J-392S	"	"	"
R894	QRD141J-472S	4.7 k	"	"
R895	QRD141J-103S	10 k	"	"
R897	QRD141J-272S	2.7 k	"	"
R898	QRD141J-272S	"	"	"
R899	QRD141J-101S	100	"	"
VR801	QVP4A0B-222	2.2 k	0.1 W	Variable
VR802	QVP4A0B-222	"	"	"

Others

Item No.	Part Number	Rating		Description
P801	E67764-002 E67764-103 EWT011-036 EWT011-038 QMV5005-007			Terminal Ass'y Wrapping Terminal Terminal Wire Ass'y " 7P Plug As'y (for Drive)
P802	QMV5005-008			8P Plug As'y (for Switch)
P803	QMV5005-005			5P Plug As'y (for L.E.D.)
P804	QMV5005-004			4P Plug As'y (for Power)
HJ807	E04371-009B			9P Socket
HJ808	E04371-006B			6P Socket
VJ807	E04371-009A			9P Socket
VJ808	E04371-006A			6P Socket
FW804	EWR34B-08SS			Flat Wire
J801	EWS017-049			Flat Wire (for POWER)
CF801	E03737-009			Resonator
RY801	ESK2D05-111 E69894-002			Relay (for Speed) Heat Sink
	E68712-001 SBST3008Z SPSP2008Z E45524-002			Bracket Screw "
	EMG7331-001			Fuse Clip (for ENL-01 A)
SW801	QST4101-E09			Push Switch (for POWER)
SW802	ESP0001-008			Push Switch
SW803	ESP0001-008			"
SW804	ESP0001-008			"
SW805	ESP0001-008			"
SW806	ESP0001-008			"
SW807	ESP0001-008			"
SW808	ESP0001-008			"
SW809	QSS1201-034 E10846-101 E10846-102			Slide Switch Circuit Board (for ENL-01 A) Circuit Board (for ENL-01 B)

12. Power Cord Connections in Different Areas



12-(1) How to handle the solderless connector

In this turntable, a solderless connector is used to connect the power cord with the primary lead wire of the power transformer.

When it is unavoidable to replace this connector for replacement of the power transformer, or the like, positively perform the replacement in accordance with the following procedure to avoid dangers.

- Connector part number
E03830-001

● Tools

Tool for installing solderless connectors.

Do not use those (small cutting pliers, etc.) other than regular tools.

Example: VACO No. 1963 (Courtesy Vaco Products Co.)

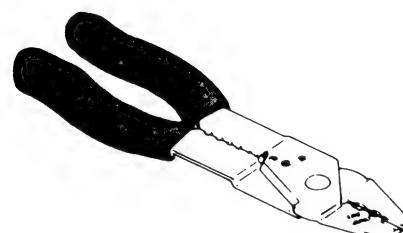


Fig. 30

● Replacement

1. Cut both the power cord and the primary lead wire at near the edge of the connector to be replaced.

Note: Do not re-use the used connector.

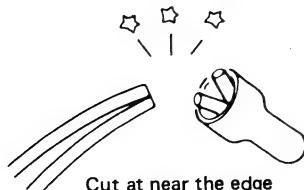


Fig. 31

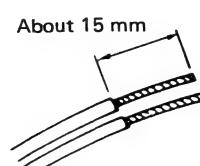


Fig. 32

2. Peel off the coverings so that the respective conductor tops appear by about 15 mm as shown in the Fig. 32.

Note: In the case of stranded wires, test each wire.

3. Adjust the tips of the power cord and the primary lead wire with each other, then securely insert them into the connector as shown in the Fig. 33.

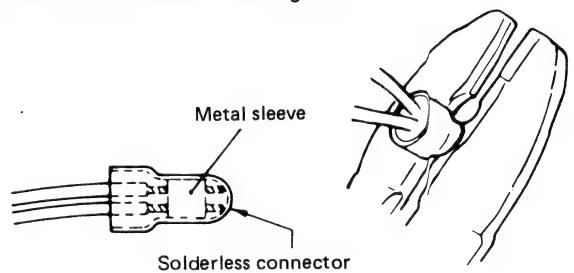


Fig. 33

Fig. 34

4. Secure the nearly equal central part of the metal sleeve with the second concave of the tool for solderless securing as shown in the Fig. 34.

Note: Perform a complete securing.

5. After solderless securing, check the following as shown in the Fig. 35.

Note: Protect connector with isolation tape or vinyl tube for safety. Furthermore, clamp it for out of touch with metal part.

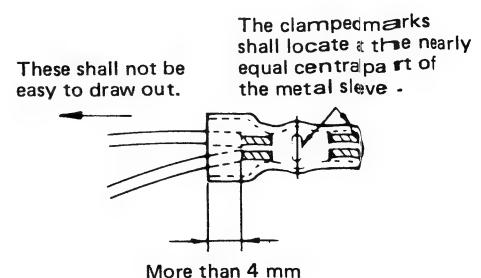


Fig. 35

13. Packing Materials and Parts Numbers

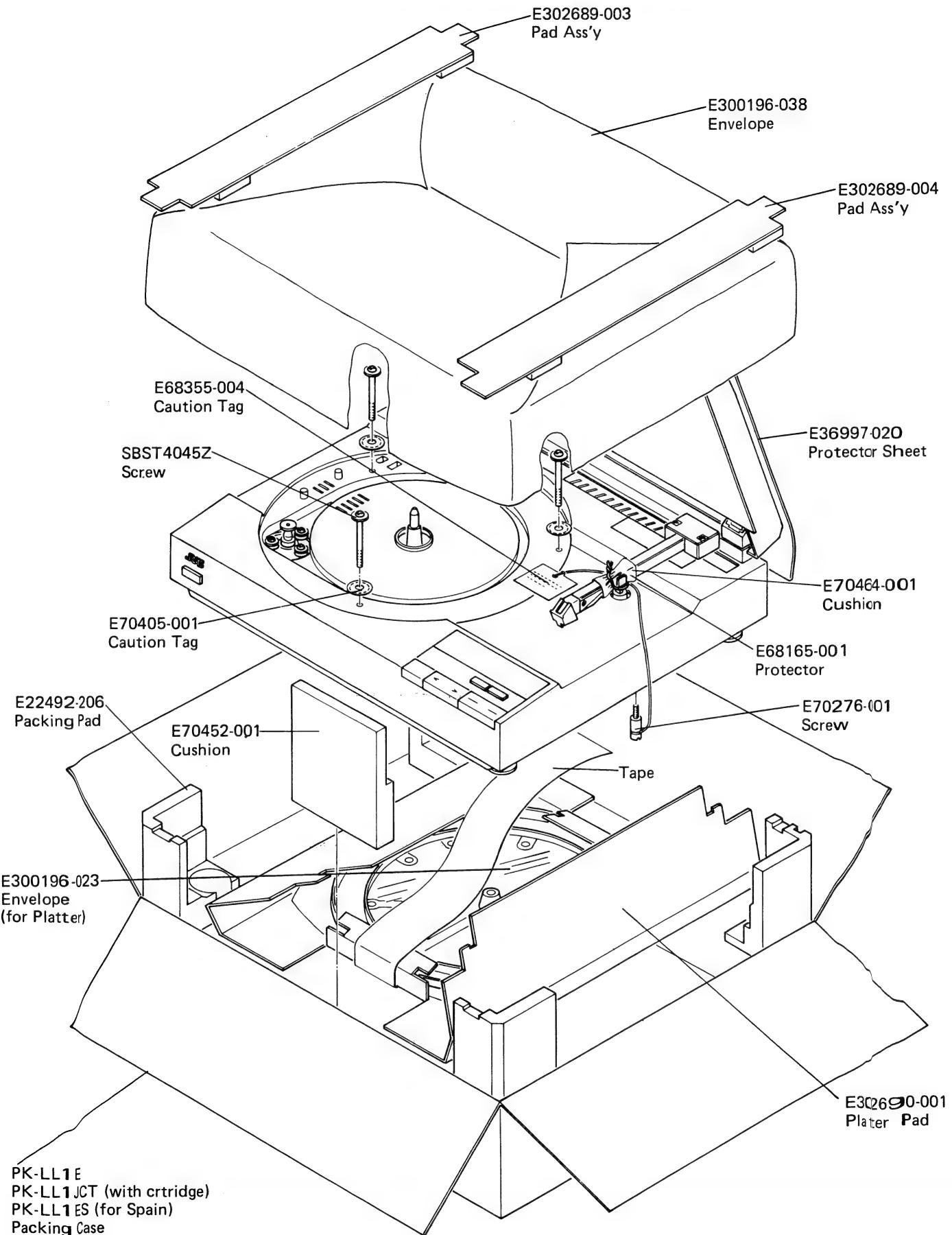
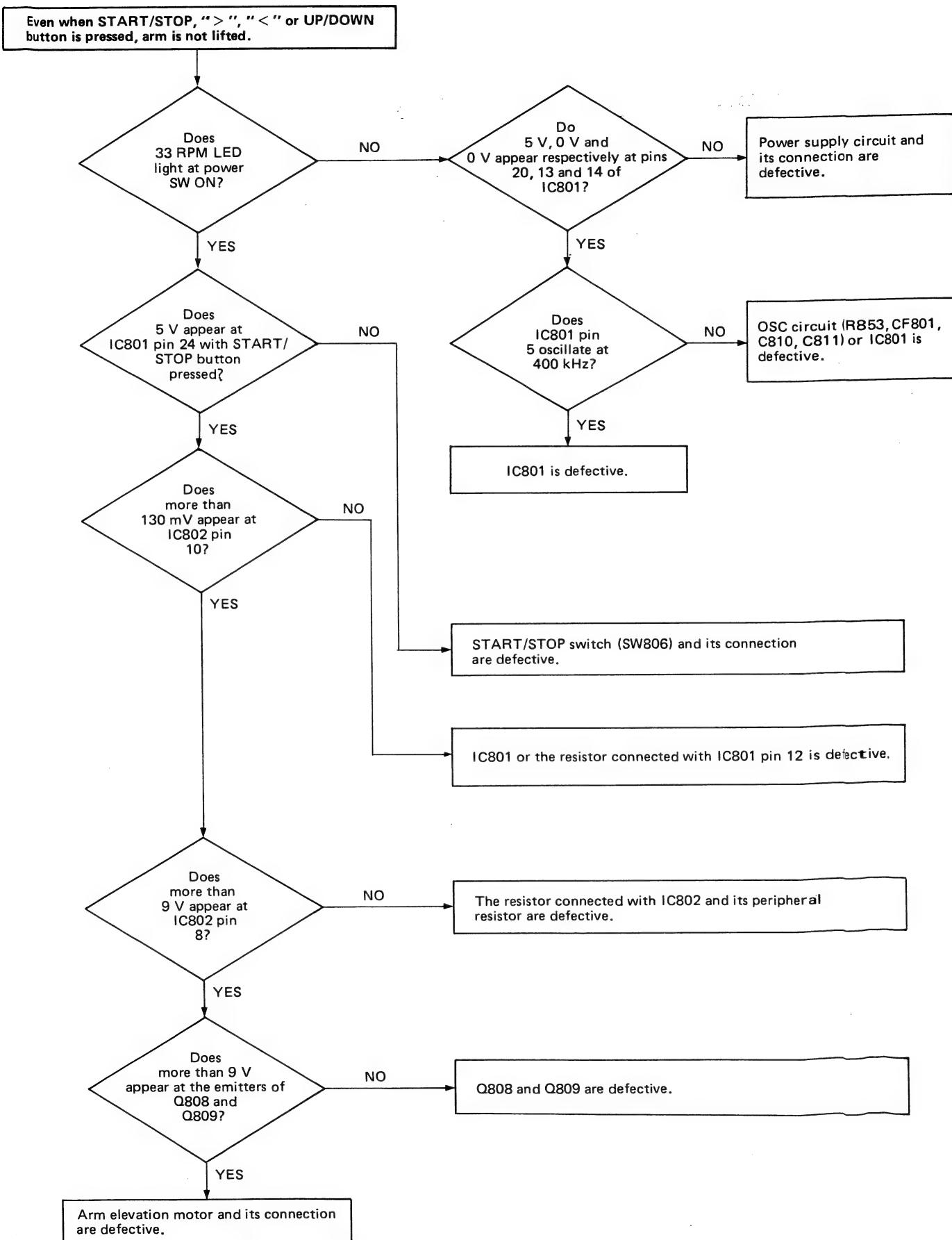
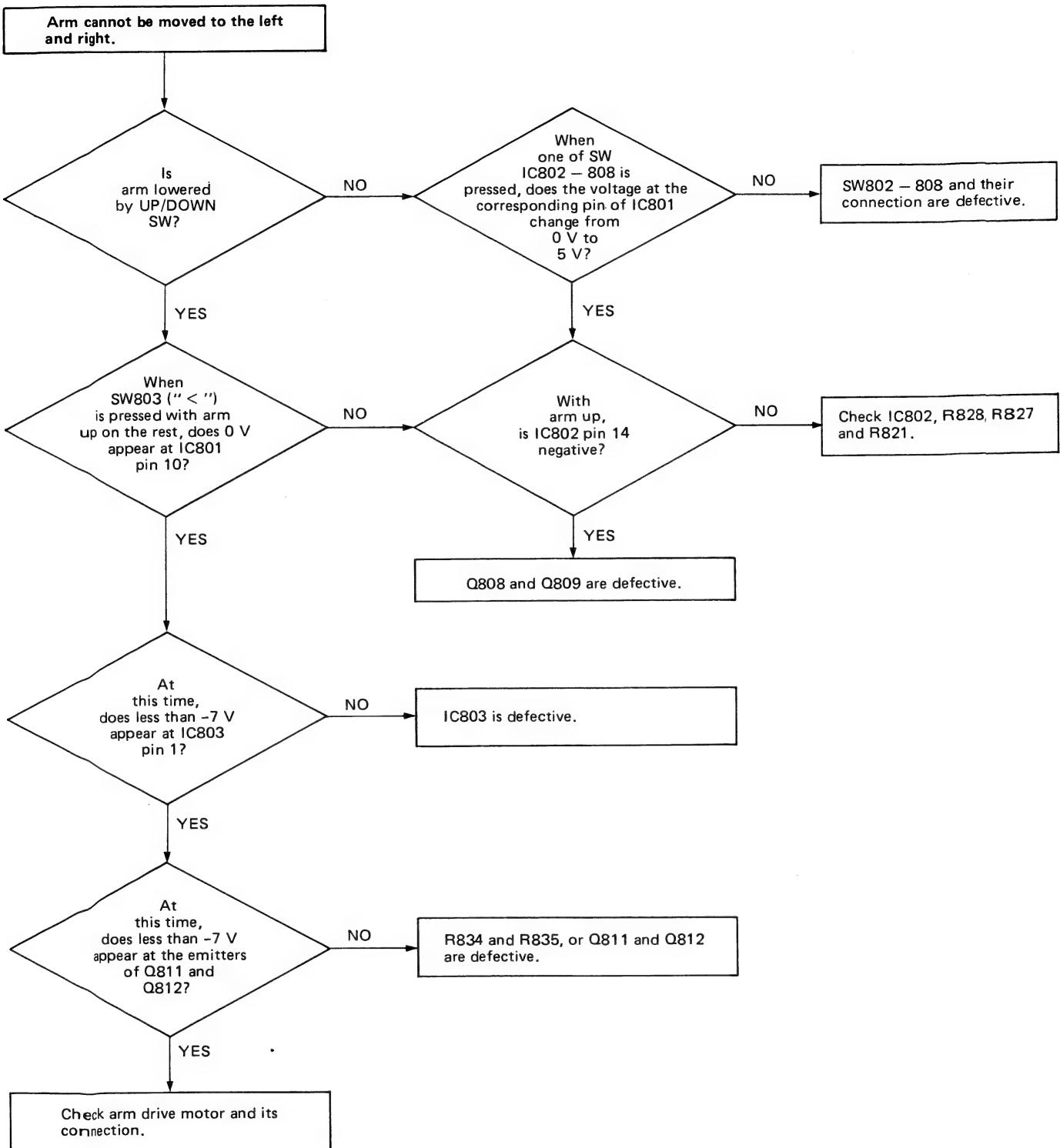


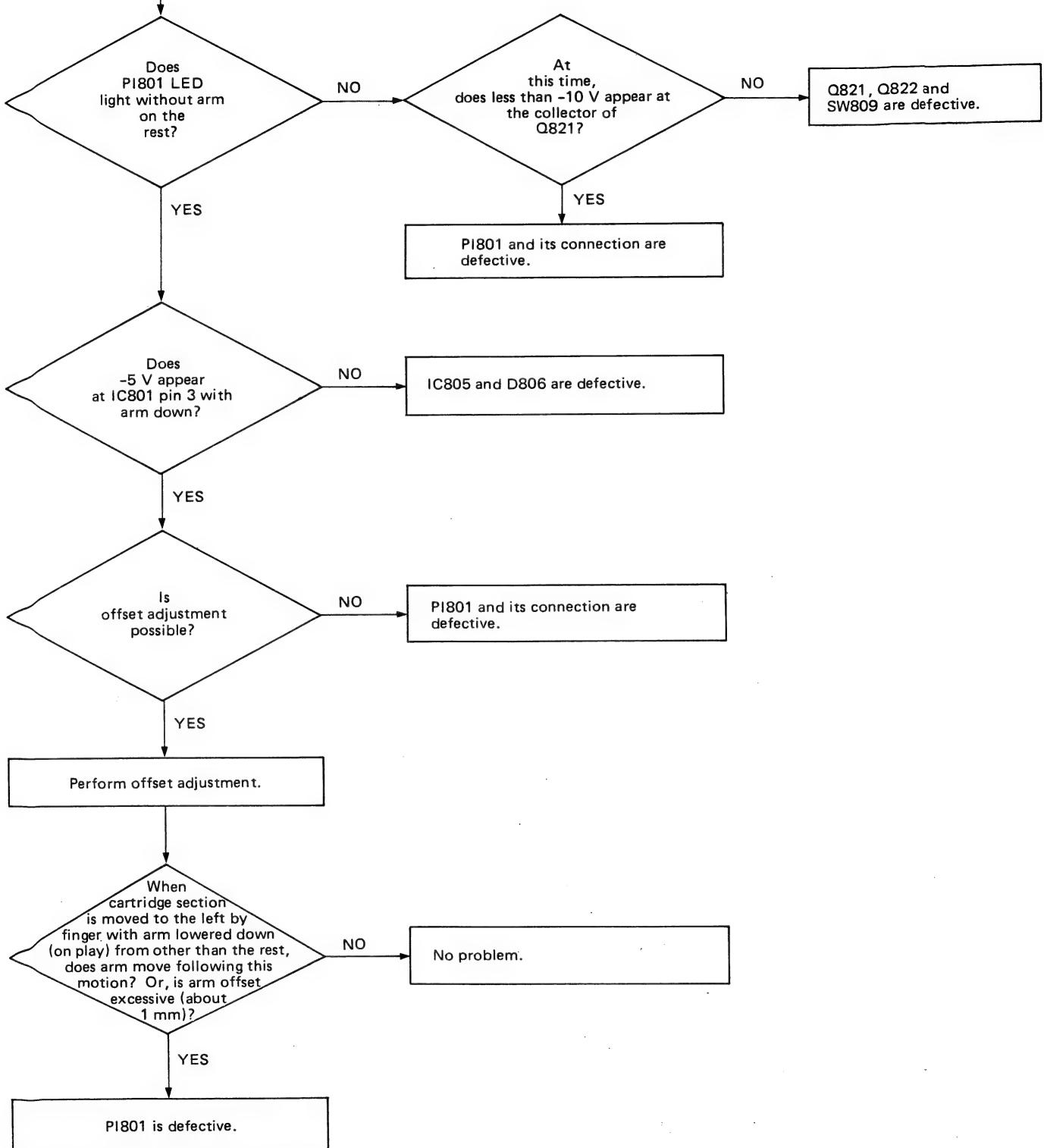
Fig. 36

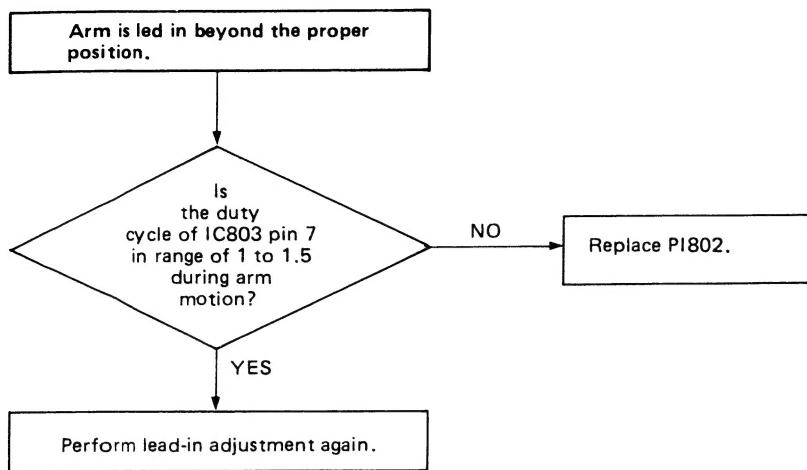
14. Troubleshooting





Even when cartridge section is moved to the left by finger with arm lowered down (on play) from other than the rest, arm does not move following this motion.





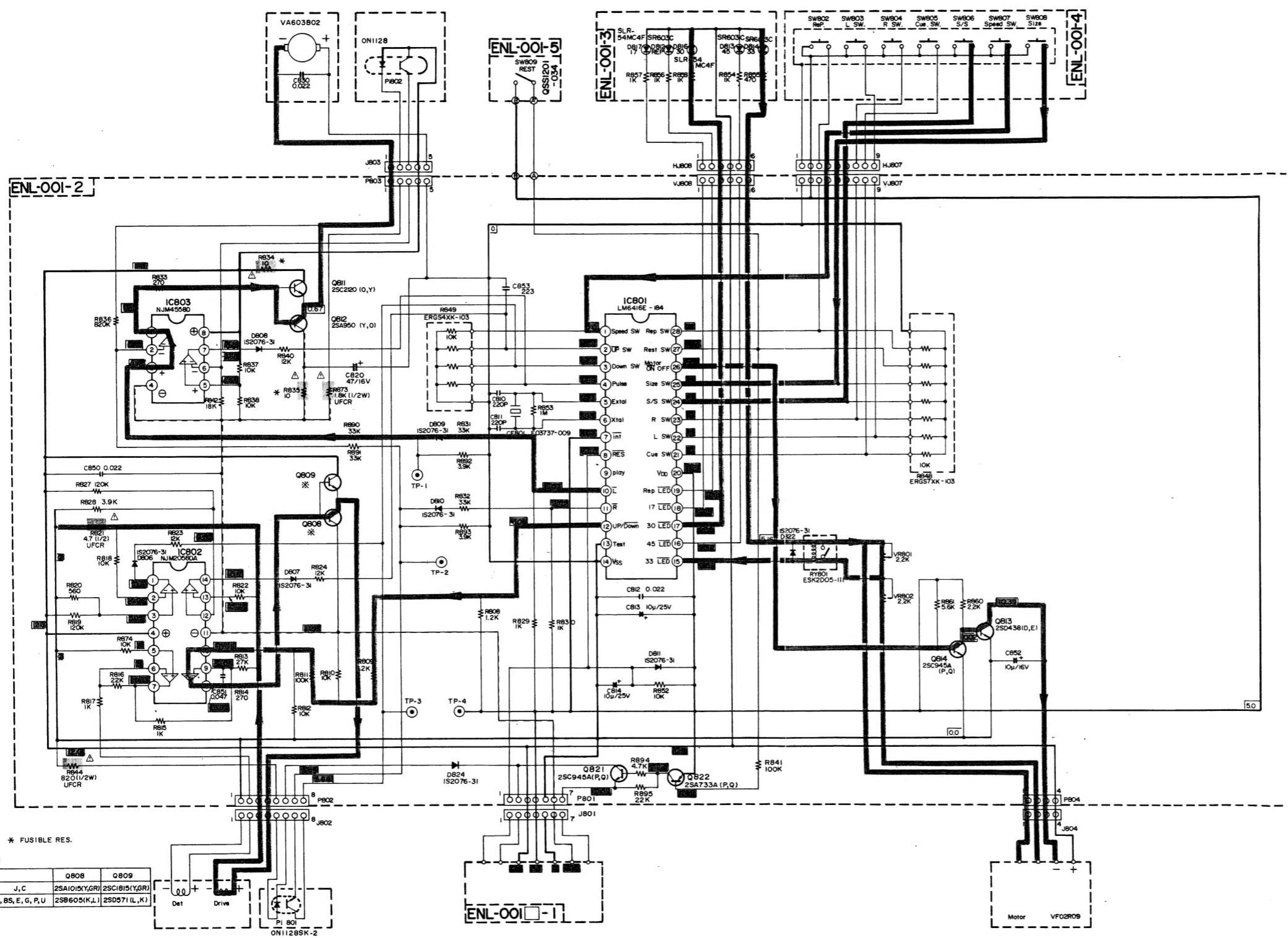
15. Parts List with Specified Numbers for Designated Areas

Item No.	Description	U.S.A. & Canada	U.S. Military Market & Other Countries	Europe & West Germany	Australia	U.K.
1	Power Transformer △	ETP1000-17JA	ETP1000-17GA	ETP1000-17EA	ETP1000-17EA	ETP1000-17E ABS
2	Power Cord △	QMP1200-200	QMP7600-250	QMP3900-200	QMP2500-244	QMP9017-08BS
3	Cord Stopper △	QHS3876-162	QHS3876-162	QHS3876-162	QHS3876-162	QHS3876-162BS
4	Connector △	E03830-001	—	—	—	—
5	Fuse (Primary) △	—	QMF51A2-R50L	—	—	—
6	Fuse (Secondary) △	QMF61U1-R80	QMF51A2-R80L	QMF51A2-R80L	QMF51A2-R80L	QMF51A2-R80LBS
7	Voltage Selector △	—	QSR0085-008U	—	—	—
8	Main P.C. Board Ass'y	ENL-001A	ENL-001B	ENL-001B	ENL-001B	ENL-001B
9	Fuse P.C. Board Ass'y	TPS-332A	TPS-332A	TPS-332B	TPS-332B	TPS-332CBS
10	P.C. Board Case	—	E302244-003	E302244-003	E302244-003	E302244-003
11	P.C. Board Cover	—	E302246-001	E302246-001	E302246-001	E302246-001
12	Voltage Selector Cover	—	E302764-001	—	—	—
13	Pick up Ass'y	—	MP-342S	MP-342S	MP-342S	MP-342S
14	Tonearm Ass'y	E24400-001	E24400-001	E24400-001	E24400-001	E24400-001
15	Cartridge	—	MD1045Z	MD1045Z	MD1045Z	MD1045Z

△ : Safety parts

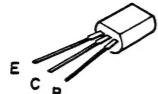
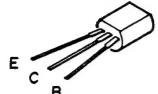
16. L-L1 Schematic Diagram

16-(1) Control section

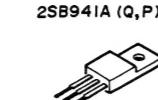


16-(2) Power supply section

2SA733A(P,Q) 2SC1815(Y,GR)
2SC945A(P,Q) 2SC2120(O,Y)
2SA950 (O,Y) 2SA1015(Y,GR)



2SD438(D,E)



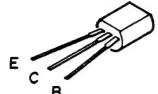
IS2076-3I RD5.6EB3
HZ12A2-L



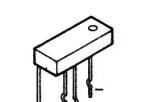
2SB941A (Q,P)



K



SIRBA20FI



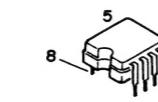
SR603C



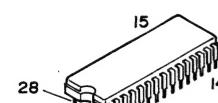
SLR54MC4F



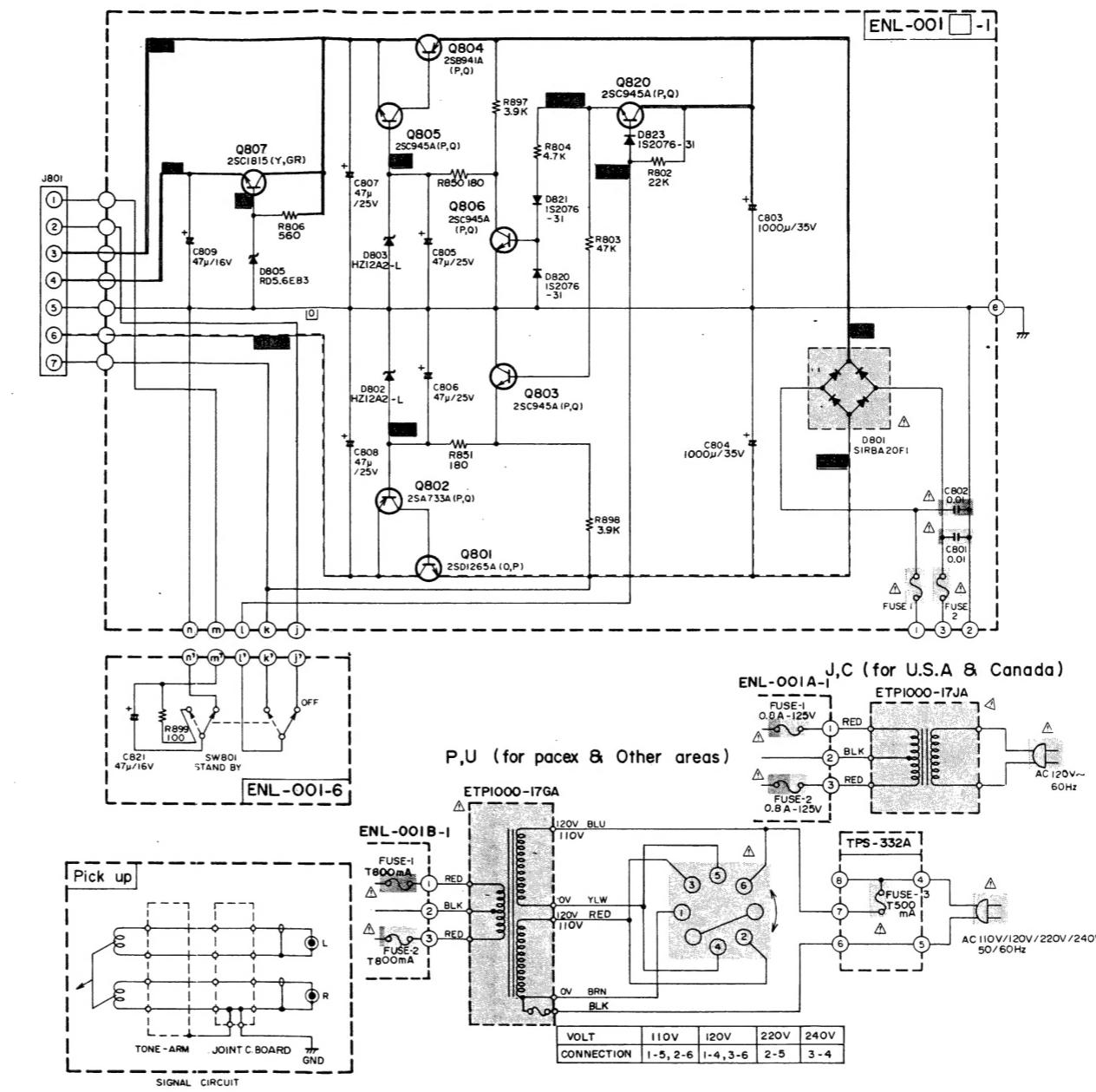
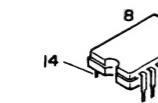
NJM4558D



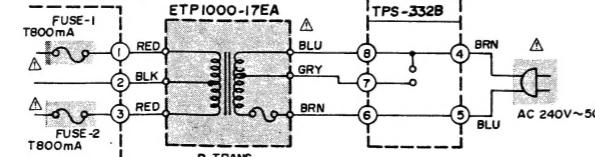
LM6416E-184



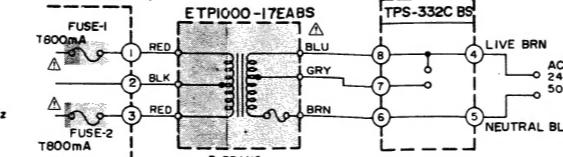
NJM2058D VCI031



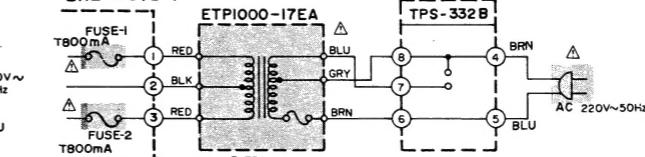
A (for Australia)



BS (for U.K.)



E,G (for Europe & Germany)



Notes:

1. — indicates positive B power supply.
2. - - - indicates negative B power supply.
3. ■■■ indicates signal path.
4. Voltage values measured with a tester (impedance 20 kΩ/V) in mode of "33-1/3 r.p.m." are indicated as below.
Example: ■■■ (unit: V)
5. When replacing the parts in the darkened area (■■■) and those marked with △, be sure to use the designated parts to ensure safety.
6. This is the standard circuit diagram.
The design and contents are subject to change without notice.

17. Accessories List

Item No.	Description	U.S.A. & (Canada)	U.S. Military Market & (Other Countries)	Europe & (Australia)	West Germany	U.K.
1	Instruction Book	E30580-1111A (")	E30580-1111A (")	E30580-1111A (")	E30580-1111A	E30580-1111ABS
2	Warranty Card	BT20047A (BT20025F)	BT20047A (-)	- (BT20029C)	BT20064	BT20060
3	Service Information Card	BT20046B (-)	BT20046B (-)	-	-	-
4	EP Adaptor	E66329-002 (")	E66329-002 (")	E66329-002 (")	E66329-002	E66329-002
5	Siemens Plug	-	- (E04056)	-	-	-
6	Safety Instruction	BT20044D (")	-	-	-	-
7	Envelope (for Instruction Book)	E300196-010 (-)	E300196-010 (")	E300196-010 (")	E300196-010	E300196-010
8	Envelope (for Warranty Card)	E66416-003 (")	-	-	-	-
9	Driver	E302584-001 (-)	-	-	-	-
10	Envelope (for Driver)	QPGA007-00605 (-)	-	-	-	-
11	EEC Agency	-	-	-	BT20066	BT20066
12	Cartridge Mounting Screw	E70254-001 (-)	-	-	-	-